

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NIPPON PLAST CO LTD

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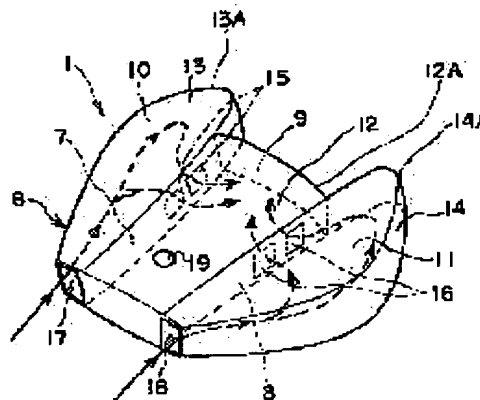
(72)Inventor : NAITO YUKIHIRO

(54) AIR BAG DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide such an air bag device without reinforcement and cost increase as being capable of not only relaxing impact on an occupant but also eliminating the need for so increasing the mounting strength of an air bag.

SOLUTION: An air bag 6 is partitioned into a center compartment 9 and two other compartments 10, 11 neighboring the center compartment 9 with partition walls 7, 8. A center air bag part 12 and side air bag parts 13, 14 neighboring the center air bag part 12 are formed in the center compartment 9 and the other compartments 10, 11, respectively. Gas supply ports 17, 18 are provided in the side air bag parts 13, 14 to supply gas from an inflator, openings 15, 16 are provided in the partition walls 7, 8 to carry gas from the side air bag parts 13, 14 to the center air bag part 12 and a vent hole 19 is provided in the center air bag part 12.



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CLAIMS

[Claim(s)]

[Claim 1] The air back equipment with which the interior of the air back divides with the septum section, three or more detached offices form, opening which makes the two aforementioned detached offices which adjoin the aforementioned septum section open for free passage mutually prepares, the gas-supply mouth with which gas is supplied from an inflator to one side of the two aforementioned detached offices prepares, and another side of the two aforementioned detached offices is characterized by to receive the inflow of gas from aforementioned one detached office.

[Claim 2] Air back equipment according to claim 1 with which at least one of the two aforementioned detached offices has an exhaust port.

[Claim 3] The air back equipment characterized by to have formed other two detached offices which divide the interior of the air back with the septum section, and adjoin a central detached office and the detached office of this center, to have prepared the gas-supply mouth with which gas is supplied to two detached offices besides the above from an inflator, to have prepared opening into which gas is made to flow to the detached office of the center of the above in the aforementioned septum section from a detached office besides the above, and to prepare an exhaust port in the

[Claim 4] the side of the couple which adjoins the air back section of the center which forms the detached office of the center of the above, and the air back section of this center, and forms a detached office besides the above, respectively -- the air back section -- having -- the side of the aforementioned couple -- the air back equipment according to claim 3 which made the point portion of the air back section project ahead from the front section of the air back section of the center of the above, and made the aforementioned front section

[Claim 5] the aforementioned air back -- the letter of the abbreviation for L characters -- carrying out -- the side of the aforementioned couple -- the air back equipment according to claim 3 which constituted the air back section so that the overall length of the air back section of the center of the above may insert, while continued and formed in the overall length of the letter of the abbreviation for L characters of the aforementioned air back section, and equipped with the aforementioned air back a part of body section which faces the flank of back reclining to seat equipment, and the

[Claim 6] The claim 1 in which the aforementioned inflator builds compressed gas, a claim 2, or air back equipment according to claim 3, 4, or 5.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the air back equipment of an automobile.

[0002]

[Description of the Prior Art] It the inflator as a source of the generation of gas (pressure generation source), and always changes the air back equipment for securing the safety of the crew at the time of the collision of an automobile into the reduction state, and it is equipped with the air back who expands in response to the high pressure gas which occurs in an inflator. And an inflator explodes at the time of a collision, gas pressure is generated, and the shock at the time of the collision to crew is eased by the air back's cushion operation which expanded in response to this gas pressure.

[0003] As this conventional kind of air back equipment, there is technology indicated by JP,5-262195,A and JP,3-329556,A. The indication technology of JP,5-262195,A prepares the inner back in the interior of the air back, prepares this inner back opening for drawing the gas from an inflator in the direction which crosses to the container front, and once it changes the flow direction of gas into the upper and lower sides or a longitudinal direction and develops the air back quickly in the configuration of the upper and lower sides or a request of a longitudinal direction by this opening, it develops the design configuration of back original.

[0004] moreover, the side of a couple where the indication technology of JP,3-329556,A has been arranged in the air back at right and left of the central back section and this central back section -- it constitutes from the back section, such three back circles space is made to become independent mutually, and is constituted, it becomes independent to each back circles, and an inflator is prepared so that gas pressure may be supplied simultaneously

[0005]

[Problem(s) to be Solved by the Invention] However, the output of an inflator must be large in order to expand the air back promptly since the design configuration of back original is developed, once an inflator's exploding at the time of a collision, generating gas pressure, and the inner back's expanding first in response to this gas pressure and developing the air back in the configuration of the upper and lower sides or a request of a longitudinal direction through opening, if it is in the above-mentioned former conventional air back equipment. When this output was increased, the shock when developing the air back became large, the air back's attachment intensity had to be large, and since reinforcement was required, there was a trouble of leading to a cost rise.

[0006] Moreover, if it is in the latter conventional air back equipment The back section is connected in the shape of parallel. the side of the couple arranged at the inflator to right and left of the air back's central back section, and this central back section -- at the time of a collision, it develops simultaneously -- as -- the side of the central back section and a couple, since the back section expands equally in response to the fact that the output of an inflator The rapid start is required immediately after starting, this property of the output characteristics of an inflator is remarkable in a hybrid type inflator, and, in the case of the inflator which uses sodium azide etc., they lead to enlargement. Moreover, it was difficult to make an output curve loose immediately after expansion, and since an output as it is is maintained, in order for an excessive shock to join the air back's suture section and the attachment section, severe reinforcement of the air back was required, the air back's ** became large, and it had the trouble of raising cost.

[0007] The place which accomplishes this invention paying attention to the above-mentioned trouble, and is made into the purpose has the thing which can ease the shock to crew and which it becomes unnecessary to enlarge attachment intensity of about [that it can do] and the air back so much, and is led to ***** and a cost rise in reinforcement in offering the air back equipment which is not.

[0008]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the air back equipment concerning invention of a claim 1 The interior of the air back is divided with the septum section, and three or more detached offices are formed. in the aforementioned septum section Opening which makes the two adjoining aforementioned detached offices open for free passage mutually is prepared, the gas supply mouth with which gas is supplied to one side of the two aforementioned detached offices from an inflator is prepared, and another side of the two aforementioned detached offices is characterized by receiving the inflow of gas from aforementioned one detached office.

[0009] By this composition, an inflator explodes at the time of a collision, a high pressure gas is generated, and this high pressure gas flows into another side of two detached offices from opening established in the septum section, and swells the air back section which forms another side of these two detached offices while it swells

the air back section which flows into one side of two detached offices through a gas supply mouth, and this detached office is full of, and forms these detached offices.

[0010] For example, it sets in the air back only whose one air back section is. Although the shock to crew has large stand going up of an output early so that the air back section may expand to abbreviation **** when an inflator explodes and a high pressure gas is generated at the time of a collision, as described above Supplying a high pressure gas to one side of two detached offices first, and swelling the air back section, by making a high pressure gas flow into another side of two detached offices, and swelling the air back section, it becomes possible to press down the output which starts and it can ease the shock to crew.

[0011] Moreover, since it becomes possible to press down the output which starts, the shock when developing the air back will become small, and it becomes unnecessary to enlarge the air back's attachment intensity so much, and it does not lead reinforcement to ***** and a cost rise.

[0012] Moreover, in order to attain the above-mentioned purpose, in air back equipment according to claim 1, as for the air back equipment concerning invention of a claim 2, at least one of the two aforementioned detached offices has an exhaust port.

[0013] Since a high pressure gas is missed from an exhaust port while about [that the same operation effect as invention of the above-mentioned claim 1 can be done so by this composition] and the air back restrains crew, the cushioning properties to crew become good further according to the effect which lowers internal pressure.

[0014] In order to attain the above-mentioned purpose, moreover, the air back equipment concerning invention of a claim 3 Other two detached offices which divide the interior of the air back with the septum section, and adjoin a central detached office and the detached office of this center are formed. It is characterized by having prepared the gas supply mouth with which gas is supplied to two detached offices besides the above from an inflator, having prepared opening into which gas is made to flow to the detached office of the center of the above in the aforementioned septum section from the detached office besides the above, and preparing an exhaust port in the detached office of the center of the above.

[0015] the side which an inflator explodes at the time of a collision, a high pressure gas is generated, this high pressure gas flows into other two detached offices through a gas supply mouth, and these detached offices are full of, and forms these detached offices by this composition -- while swelling the air back section, it flows into a central detached office from opening prepared in the septum section, and the air back section of the center which forms the detached office of this center is swollen

[0016] For example, it sets in the air back only whose one air back section is. Although the shock to crew has large stand going up of an output early so that the air back section may expand to abbreviation **** when an inflator explodes and a high pressure gas is generated at the time of a collision, as described above the beginning -- a high pressure gas -- other two detached offices -- supplying -- the side -- swelling the air back section, by making a high pressure gas flow into a central detached office, and swelling the central air back section, it becomes possible to press down the output which starts and it can ease the shock to crew

[0017] Moreover, since it becomes possible to press down the output which starts, the shock when developing the air back will become small, and it becomes unnecessary to enlarge the air back's attachment intensity so much, and it does not lead reinforcement to ***** and a cost rise.

[0018] Moreover, since a high pressure gas is missed from an exhaust port while restraining crew, the cushioning properties to crew become good further according to the effect which lowers internal pressure.

[0019] In order to attain the above-mentioned purpose, moreover, the air back equipment concerning invention of a claim 4 The air back section of the center which forms the detached office of the center of the above in air back equipment according to claim 3, the side of the couple which adjoins the air back section of this center and forms a detached office besides the above, respectively -- the air back section -- having -- the side of the aforementioned couple -- the point portion of the air back section was made to project ahead from the front section of the air back section of the center of the above, and the aforementioned front section of the air back section of the center of the above was made into the shape of a concave

[0020] From opening which the high pressure gas prepared in the septum section, the air back section of about [that the same operation effect as invention of the above-mentioned claim 4 can be done so by this composition] and a center flows into a central detached office, and is swollen. this time -- the air back section of this center -- the side on either side -- the air back section can press down lower than the one air back the shock at the time of crew asking the air back, since internal pressure is weak as compared with the air back section For this reason, the shock to crew can be softened.

[0021] moreover, the side on either side, since the point portion of the air back section has projected ahead from the front section of the central air back section the crew restraint at the time of a slanting collision -- the side on either side -- the portion which improves because the air back section swells early more and in which it carries out and contact of the air back and crew is considered [most], although it is the front section of the central air back section Since this front section is made into the shape of a concave, the shock at the time of crew contact can be eased more.

[0022] In order to attain the above-mentioned purpose, moreover, the air back equipment concerning invention of a claim 5 air back equipment according to claim 3 -- setting -- the aforementioned air back -- the letter of the abbreviation for L characters -- carrying out -- the side of the aforementioned couple -- the air back section, while being continued and formed in the overall length of the letter of the abbreviation for L characters of the aforementioned air back section It constituted so that the overall length of the air back section of the center of the above might be inserted, and a part of body section which faces the flank of back reclining to seat equipment and the flank of the aforementioned seat equipment was equipped with the aforementioned air back.

[0023] An inflator explodes at the time of about [that the same operation effect as invention of the above-

mentioned claim 4 can be done so by this composition], and a collision, and a high pressure gas is generated. this high pressure gas a gas supply mouth --- minding --- the side --- the air back section --- flowing --- these sides --- while swelling the air back section in side the configuration of L characters and guiding the central air back section, it flows into the central air back section from opening prepared in the septum section, and the air back section of this center is swollen For this reason, it becomes possible to perform early back formation.

[0024] Moreover, in a claim 1, a claim 2, or air back equipment according to claim 3, 4, or 5, as for the air back equipment concerning invention of a claim 6, the aforementioned inflator builds in compressed gas.

[0025] The air back can be operated by the compressed gas which about [that the same operation effect as invention of the above-mentioned claim 1, a claim 2, a claim 3, a claim 4, or a claim 5 can be done so by this composition] and an inflator builds in.

[0026]

[Embodiments of the Invention] Hereafter, the form of operation of this invention is explained based on a drawing. Drawing 1 is [0027] which is the rough perspective diagram of the expansion state of the example of a form of 1 operation of the air back equipment concerning this invention. The air back equipment 1 concerning this invention is formed in the air back module with which was the upper part of a glove box, and has been arranged at the passenger side or the handle was equipped in the interior of an instrument panel. And this air back equipment 1 is equipped with the back case (not shown), and the air back 6 and the inflator (not shown) are contained in this back case. Three detached offices 9 which this air back 6 was divided with the two septum sections 7 and 8, and were formed, i.e., a central detached office, The air back section 12 of the center which has the detached office 10 of the left-hand side located in the left-hand side of the detached office 9 of this center, and the detached office 11 of the right-hand side located in the right-hand side of the detached office 9 of this center, and forms the central detached office 9, the side of the left which forms the left-hand side detached office 10 --- the side of the right which forms the air back section 13 and the right-hand side detached office 11 --- it constitutes from the air back section 14

[0028] And in the example, two or more two openings 15 are formed in the septum section 7 which separates the central detached office 9 and the left-hand side detached office 10, and two or more two openings 16 are formed in the septum section 8 which separates the central detached office 9 and the right-hand side detached office 11 in the example. moreover, the side of the left and the right --- the gas supply mouths 17 and 18 are formed in the back end section of the air back sections 13 and 14 Moreover, the vent hole 19 which is an exhaust port is formed in the upper surface section of the central air back section 12.

[0029] and --- the state where swelled the air back 6 and it made in the original design configuration --- the side of the left and the right --- the point portions 13A and 14A of the air back sections 13 and 14 are ahead projected from front section 12A of the central air back section 12, and front section 12A of the air back section 12 of this center is making the convex configuration which projects ahead

[0030] the state where the air back 6 constituted as mentioned above was folded up --- it is --- the inside of a back case --- containing --- **** --- this air back's 6 left, and the right side --- the gas supply mouths 17 and 18 of the back end section of the air back sections 13 and 14 are open for free passage to the gas port (not shown) of an inflator

[0031] In the above-mentioned air back equipment, an inflator explodes at the time of a collision and a high pressure gas is generated. this high pressure gas an arrow shows the flow direction by drawing 1 --- as --- a gas port to the gas supply mouths 17 and 18 --- minding --- detached offices 10 and 11 --- flowing --- these detached offices 10 and 11 --- being full --- the side on either side, while swelling the air back sections 13 and 14 It flows into the central detached office 9 from the openings 15 and 16 prepared in the septum sections 7 and 8, and the central air back section 12 is swollen.

[0032] For example, it sets in the air back 100 only whose one air back section 101 is as shown in drawing 4 . Although the shock to crew has large stand going up of an output early so that the air back section 101 may expand to abbreviation **** when an inflator explodes and a high pressure gas is generated at the time of a collision, as described above the detached offices 10 and 11 of the right and left of a high pressure gas to the beginning --- supplying --- the side on either side --- by making a high pressure gas flow into the central detached office 9, and swelling the central air back section 12, swelling the air back sections 13 and 14 It becomes possible to press down the output which starts and it eases the shock to crew.

[0033] moreover, the side on either side --- if the air back sections 13 and 14 make the capacity small compared with the central air back section 12 --- the side on either side --- the air back sections 13 and 14 swell early very much according to the jet effect of a high pressure gas, and carry out operation (the side of right and left of the jet effect of a high pressure gas --- it absorbs in the air back sections 13 and 14) which leads the central air back section 12 to a crew side

[0034] From the openings 15 and 16 which the high pressure gas prepared in the septum sections 7 and 8, the central air back section 12 flows into the central detached office 9, and is swollen. this time --- the air back section 12 of this center --- the side on either side --- the air back section 101 which shows the shock at the time of crew asking the air back since internal pressure is low as compared with the air back sections 13 and 14 to drawing 4 can press down lower than the one air back 100 For this reason, the shock to crew can be softened. Moreover, since a high pressure gas is missed from a vent hole 19 while restraining crew, the cushioning properties to crew become good further according to the effect which lowers internal pressure, and it becomes possible to perform a DEPAWA operation in two stages.

[0035] moreover, the side on either side --- since the point portions 13A and 14A of the air back sections 13 and 14 have projected ahead from front section 12A of the central air back section 12 --- the crew restraint at the time of a slanting collision --- the side on either side --- it is improving because the air back sections 13 and

14 swell early more

[0036] The example of a gestalt of other operations of the air back equipment applied to this invention at drawing 2 is shown. If it is in this air back equipment 1, although it is front section 12A of the central air back section 12, the portion considered that there is most contact of the air back 6 and crew makes this front section 12A the shape of a concave, and has eased the shock at the time of crew contact. Moreover, by changing the number, the position, and area of the openings 15 and 16 prepared in the septum sections 7 and 8, how depending on which the inflow and the inflow part of a high pressure gas are changed, and the central air back section 12 swells is changed, and improvement in a crew protection performance is aimed at. And since other composition is the same composition as the example of a gestalt of operation shown in drawing 1, it attaches the same sign and omits explanation.

[0037] Moreover, the example of a gestalt of other another operations of the air back equipment applied to this invention at drawing 3 is shown. This air back equipment 1 is the side air back with whom the right-hand side section of the back reclining 21 to seat equipment 20 is equipped. the state where swelled the air back 6 and it made in the original design configuration if it was in this air back equipment -- the side -- the air back sections 13 and 14 are side the configurations of L characters, and it is located in the upper and lower sides which sandwiched the central air back section 12

[0038] An inflator explodes at the time of a collision and a high pressure gas is generated. therefore, this high pressure gas a gas port to the gas supply mouths 17 and 18 -- minding -- detached offices 10 and 11 -- flowing -- these detached offices 10 and 11 -- being full -- the side, while swelling the air back sections 13 and 14 in side the configuration of L characters and guiding the central air back section 12 It flows into the central detached office 9 from the openings 15 and 16 prepared in the septum sections 7 and 8, and the central air back section 12 is swollen. For this reason, it becomes possible to perform early back formation. Such the side air back is effective when there is the need that module capacity is small (narrow) and of protecting a latus portion comparatively. In addition, you may equip a door panel, the pillar section, etc. with such air back equipment the outside with which back reclining is equipped.

[0039] In addition, although the thing of composition of exploding as the aforementioned inflator at the time of a collision, and generating a high pressure gas was used, you may use the inflator which builds in compressed gas.

[0040]

[Effect of the Invention] As explained above, according to the air back equipment concerning this invention, an inflator explodes at the time of a collision and a high pressure gas is generated. this high pressure gas While swelling the air back section which flows into one side of two detached offices through a gas supply mouth, and this detached office is full of, and forms these detached offices, it flows into another side of two detached offices from opening established in the septum section, and the air back section which forms another side of these two detached offices is swollen.

[0041] For example, it sets in the air back only whose one air back section it is alike and is. Although the shock to crew has large stand going up of an output early so that the air back section may expand to abbreviation **** when an inflator explodes and a high pressure gas is generated at the time of a collision, as described above Supplying a high pressure gas to one side of two detached offices first, and swelling the air back section, by making a high pressure gas flow into another side of two detached offices, and swelling the air back section, it becomes possible to press down the output which starts and it can ease the shock to crew.

[0042] Moreover, since it becomes possible to press down the output which starts, the shock when developing the air back will become small, and it becomes unnecessary to enlarge the air back's attachment intensity so much, and it does not lead reinforcement to ***** and a cost rise.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the rough perspective diagram of the expansion state of the example of a gestalt of 1 operation of the air back equipment concerning this invention.

[Drawing 2] It is the rough perspective diagram of the expansion state of the example of a gestalt of other operations of the air back equipment concerning this invention.

[Drawing 3] It is the perspective diagram of the seat composition at the time of using the air back equipment concerning this invention as the side back.

[Drawing 4] The air back section is the rough perspective diagram of the expansion state of only one air back equipment.

[Description of Notations]

- 6 Air Back
- 7 Septum Section
- 8 Septum Section
- 9 Detached Office
- 10 Detached Office
- 11 Detached Office
- 12 Central Air Back Section
- 13 Side — Air Back Section
- 14 Side — Air Back Section
- 15 Opening
- 16 Opening
- 17 Gas Supply Mouth
- 18 Gas Supply Mouth
- 19 Vent Hole (Exhaust Port)

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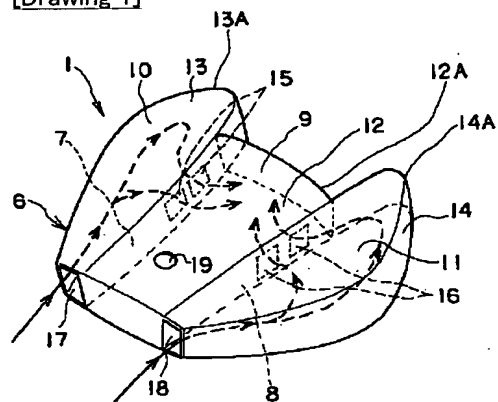
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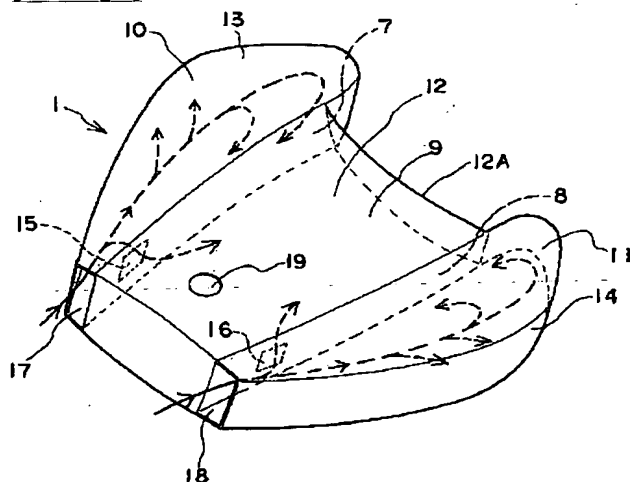
DRAWINGS

[Drawing 1]

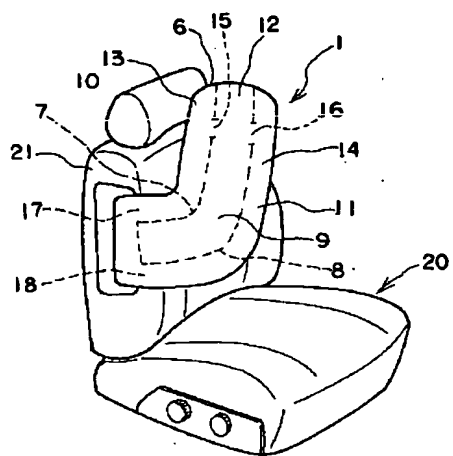


- 6 エアバッグ
- 7 隔壁部
- 8 隔壁部
- 9 分室
- 10 分室
- 11 分室
- 12 中央のエアバッグ部
- 13 側方エアバッグ部
- 14 側方エアバッグ部
- 15 開口
- 16 開口
- 17 ガス供給孔
- 18 ガス供給孔
- 19 ベントホール(排気口)

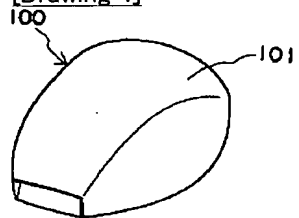
[Drawing 2]



[Drawing 3]



[Drawing 4]



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(71) 出願人 000229955

日本プラスト株式会社
静岡県富士市青島町218番地

(72) 発明者 内藤 幸広

静岡県富士市青島町218番地 日本プラス
ト株式会社内

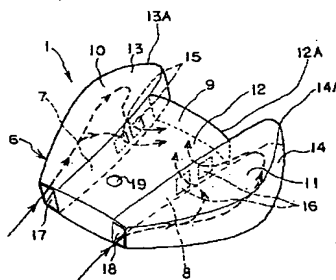
(74) 代理人 弁理士 青木 輝夫

(54) 【発明の名称】 エアバック装置

(57) 【要約】

【課題】 乗員への衝撃を緩和することができるばかりか、エアバックの取付強度をさほど大きくする必要がなくなって補強を要さず、コストアップにつながることはないエアバック装置を提供する。

【解決手段】 エアバック6の内部を隔壁部7、8で仕切って中央の分室9とこの中央の分室9に隣接する他の2つの分室10、11を形成し、中央の分室9で中央のエアバック部12を、他の分室10、11で中央のエアバック部13に隣り合う側方エアバック部13、14をそれぞれ形成し、側方エアバック部13、14にインフレーターからガスが供給されるガス供給口17、18を設け、隔壁部7、8に側方エアバック部13、14から中央のエアバック部13にガスを流入させる開口15、16を設け、中央のエアバック部12にベントホール19を設けた。



- 6 エアバック
- 7 隔壁部
- 8 隔壁部
- 9 分室
- 10 分室
- 11 分室
- 12 中央のエアバック部
- 13 側方エアバック部
- 14 側方エアバック部
- 15 開口
- 16 開口
- 17 ガス供給口
- 18 ガス供給口
- 19 ベントホール(排気口)

【特許請求の範囲】

【請求項1】 エアバックの内部を隔壁部で仕切って3つ以上の分室を形成し、前記隔壁部に、隣接する前記2つの分室を互いに連通させる開口を設け、前記2つの分室の一方に、インフレーターからガスが供給されるガス供給口を設け、前記2つの分室の他方が、前記一方の分室からガスの流入を受けるようにしたことを特徴とするエアバック装置。

【請求項2】 前記2つの分室の少なくとも一つが排気口を有する請求項1に記載のエアバック装置。

【請求項3】 エアバックの内部を隔壁部で仕切って中央の分室とこの中央の分室に隣接する他の2つの分室を形成し、前記他の2つの分室にインフレーターからガスが供給されるガス供給口を設け、前記隔壁部に前記他の分室から前記中央の分室にガスを流入させる開口を設け、前記中央の分室に排気口を設けたことを特徴とするエアバック装置。

【請求項4】 前記中央の分室を形成する中央のエアバック部と、この中央のエアバック部に隣り合って前記他の分室をそれぞれ形成する一対の側方エアバック部とを備え、前記一対の側方エアバック部の先部分を前記中央のエアバック部の前面部より前方に突出させ、前記中央のエアバック部の前記前面部を凹形状にした請求項3に記載のエアバック装置。

【請求項5】 前記エアバックを略し字状にして、前記一対の側方エアバック部は前記エアバック部の略し字状の全長に亘って形成されると共に、前記中央のエアバック部の全長を挟むように構成し、前記エアバックを座席装置の背凭れの側部及び前記座席装置の側部に面する車体部の一部に装着した請求項3に記載のエアバック装置。

【請求項6】 前記インフレーターが圧縮ガスを内蔵する請求項1又は請求項2又は請求項3又は請求項4又は請求項5に記載のエアバック装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、自動車のエアバック装置に関するものである。

【0002】

【従来の技術】自動車の衝突時における乗員の安全性を確保するためのエアバック装置は、ガス発生源（圧力発生源）としてのインフレーターと、常時は縮小状態にされていて、インフレーターで発生する高圧ガスを受けて膨脹されるエアバックとを備えている。そして、衝突時にインフレーターが起爆されてガス圧を発生し、このガス圧を受けて膨脹したエアバックのクッション作用によって、乗員に対する衝突時の衝撃を緩和している。

【0003】従来のこの種のエアバック装置として、特開平5-262195号公報及び特開平3-329556号公報に開示された技術がある。特開平5-2621

95号公報の開示技術は、エアバックの内部にインナーバックを設けて、このインナーバックに、インフレーターからのガスをコンテナ前方に対して交叉する方向に導くための開口を設けて、この開口によって、ガスの流れ方向を上下または左右方向に変更して、エアバックを一旦上下または左右方向の所望の形状に素早く展開した後に、バック本来の設計形状を展開するようにしたものである。

【0004】また、特開平3-329556号公報の開示技術は、エアバックを中央バック部と、この中央バック部の左右に配置された一対の側方バック部とで構成し、これらの3つのバック部内空間を互いに独立させて構成し、各バック部内に対して独立して且つ同時にガス圧を供給するようにインフレーターを設けたものである。

【0005】

【発明が解決しようとする課題】しかしながら、上記した前者の従来のエアバック装置にあっては、衝突時にインフレーターが起爆されてガス圧を発生し、このガス圧を受けてインナーバックがまず膨脹し、開口を通してエアバックを一旦上下または左右方向の所望の形状に展開した後に、バック本来の設計形状を展開させるから、エアバックを速やかに膨脹させるには、インフレータの出力が大きくなければならない。この出力を増すと、エアバックを展開するときのショックが大きくなり、エアバックの取付強度が大きくなければならず、補強を要することもあり、コストアップにつながるという問題点があった。

【0006】また、後者の従来のエアバック装置にあっては、インフレーターにエアバックの中央バック部と、この中央バック部の左右に配置された一対の側方バック部とを並列状に接続して、衝突時に、同時に展開するように中央バック部と一対の側方バック部とが、インフレータの出力を均等に受けて膨脹するので、インフレータの出力特性は起動直後に急激な立上がりが必要とされ、ハイブリッド型インフレーターにはこの特性が顕著であり、アジ化ソーダなどを使用するインフレーターの場合、大型化につながる。また、膨脹直後に出力カーブを緩やかにすることは困難で、そのままの出力が維持されるから、エアバックの縫合部や取付部に過大なショックが加わるために、エアバックの嚴重な補強を要し、エアバックの高が大きくなり、コストを上昇させるという問題点があった。

【0007】本発明は、上記の問題点に着目して成されたものであって、その目的とするところは、乗員への衝撃を緩和することができるできるだけ、エアバックの取付強度をさほど大きくする必要がなくなって補強を要さず、コストアップにつながることはないエアバック装置を提供することにある。

【0008】

【課題を解決するための手段】上記の目的を達成するた

膨らませると共に、隔壁部に設けた開口から中央の分室に流入して、この中央の分室を形成する中央のエアバック部を膨らませる。

【００１６】例えば、エアバック部が１つしかないエアバックにおいては、衝突時にインフレーターが起爆されて高圧ガスを発生すると略同時にエアバック部が膨脹するように出力の立ち上がりが早く、乗員への衝撃が大きい。が、上記したように、最初に高圧ガスを他の２つの分室に供給して側方エアバック部を膨らませながら、高圧ガスを中央の分室に流入させて中央のエアバック部を膨らませるようにすることにより、立ち上りの出力を抑えることが可能になって、乗員への衝撃を緩和することができる。

【0017】また、立ち上りの出力を抑えることが可能になるために、エアバックを展開するときのショックが小さいものになり、エアバックの取付強度をさほど大きくする必要がなくなつて補強を要さず、コストアップにつながることはない。

【0018】また、乗員を拘束中は、排気口より高圧ガスを逃がすので、内圧を下げる効果によりさらに乗員へのクッション性が良くなる。

【0019】また、上記の目的を達成するために、請求項4の発明に係るエアバック装置は、請求項3に記載のエアバック装置において、前記中央の分室を形成する中央のエアバック部と、この中央のエアバック部に隣り合っ
て前記他の分室をそれぞれ形成する一対の側方エアバック部とを備え、前記一対の側方エアバック部の先部分を前記中央のエアバック部の前面部より前方に突出させ、前記中央のエアバック部の前記前面部を凹形状にした。

【0020】かかる構成により、上記した請求項4の発明と同様な作用効果を奏し得るばかりか、中央のエアバック部は、高圧ガスが、隔壁部に設けた開口から中央の分室に流入して膨らまされる。この時、この中央のエアバック部は、左右の側方エアバック部に比較して内圧が弱いため、乗員がエアバックに当たる時点の衝撃を、エアバック部が1つしかないエアバックより低く押えることができる。このために、乗員への衝撃を和らげることができる。

【0021】また、左右の側方エアバック部の先部分が中央のエアバック部の前面部より前方に突出しているために、斜め衝突時の乗員拘束が、左右の側方エアバック部がより早く膨らむことで向上されるし、エアバックと乗員の接触が一番多いと考えられる部分は、中央のエアバック部の前面部であるが、この前面部を凹形状にしてあるために、乗員接触時の衝撃をより緩和することができる。

【００２２】また、上記の目的を達成するために、請求項５の発明に係るエアバック装置は、請求項３に記載のエアバック装置において、前記エアバックを略し字状に

して、前記一対の側方エアバック部は前記エアバック部の略し字状の全長に亘って形成されると共に、前記中央のエアバック部の全長を挟むように構成し、前記エアバック部を座席装置の背凭れの側部及び前記座席装置の側部に面する車体部の一部に装着した。

【0023】かかる構成により、上記した請求項4の発明と同様な作用効果を奏し得るばかりか、衝突時にインフレーターが起爆されて高圧ガスを発生し、この高圧ガスは、ガス供給口を介して側方エアバック部に流入して、これらの側方エアバック部を側面し字形状に膨らませて、中央のエアバック部のガイドを行うと共に、隔壁部に設けた開口から中央のエアバック部に流入して、この中央のエアバック部を膨らませる。このために、早いバック形成を行うことが可能になる。

【0024】また、請求項6の発明に係るエアバック装置は、請求項1又は請求項2又は請求項3又は請求項4又は請求項5に記載のエアバック装置において、前記インフレーターが圧縮ガスを内蔵する。

【0025】かかる構成により、上記した請求項1又は請求項2又は請求項3又は請求項4又は請求項5の発明と同様な作用効果を奏し得るばかりか、インフレーターが内蔵する圧縮ガスによりエアバックを作動させることができる。

【0026】

【発明の実施の形態】以下、本発明の実施の形態を図面に基いて説明する。図1は本発明に係るエアバック装置の一実施の形態例の展開状態の概略的な斜視図である

【0027】本発明に係るエアバック装置1は、例えば、インストルメントパネルの内部において、グローブボックスの上方で且つ助手席側に配置されるか、もしくは、ハンドルに装備されたエアバックモジュールに設けられるものである。そして、このエアバック装置1はバックケース（図示せず）を備えており、このバックケース内には、エアバック6とインフレーター（図示せず）とが収納してある。このエアバック6は、2つの隔壁部7、8で仕切られて形成された3つの分室、すなわち中央の分室9と、この中央の分室9の左側に位置する左側の分室10と、この中央の分室9の右側に位置する右側の分室11とを有していて、中央の分室9を形成する中央のエアバック部12と、左側の分室10を形成する左側の側方エアバック部13と、右側の分室11を形成する右側の側方エアバック部14とで構成してある。

【0028】そして、中央の分室9と左側の分室10とを隔てる隔壁部7には、複数個、実施例では2個の開口15が設けてあり、中央の分室9と右側の分室11とを隔てる隔壁部8には、複数個、実施例では2個の開口16が設けてある。また、左、右の側方エアバック部13、14の後端部にはガス供給口17、18が設けてある。また、中央のエアバック部12の上面部には排気口であるベントホール19が設けてある。

【0029】そして、エアバック6を膨らませて、本来の設計形状になした状態では、左、右の側方エアバック部13、14の先部分13A、14Aは中央のエアバック部12の前面部12Aより前方に突出しており、また、この中央のエアバック部12の前面部12Aは前方に突出する凸形状をなしている。

【0030】上記のように構成されたエアバック6は折り畳まれた状態で、バックケース内に収納してあって、このエアバック6の左、右の側方エアバック部13、14の後端部のガス供給口17、18はインフレーター10のガス噴出口（図示せず）に連通している。

【0031】上記したエアバック装置において、衝突時にインフレーターが起爆されて高圧ガスを発生し、この高圧ガスは、その流れ方向を図1で矢印で示すようにガス噴出口からガス供給口17、18を介して分室10、11に流入し、これらの分室10、11に充満して左右の側方エアバック部13、14を膨らませると共に、隔壁部7、8に設けた開口15、16から中央の分室9に流入して、中央のエアバック部12を膨らませる。

【0032】例えば、図4に示すようにエアバック部101が1つしかないエアバック100においては、衝突時にインフレーターが起爆されて高圧ガスを発生すると略同時にエアバック部101が膨脹するように出力の立ち上りが早く、乗員への衝撃が大きいが、上記したように、最初に高圧ガスを左右の分室10、11に供給して左右の側方エアバック部13、14を膨らませながら、高圧ガスを中央の分室9に流入させて中央のエアバック部12を膨らませるようにすることにより、立ち上りの出力を抑えることが可能になって、乗員への衝撃を緩和する。

【0033】また、左右の側方エアバック部13、14は中央のエアバック部12に比べてその容量を小さくすると、左右の側方エアバック部13、14は、高圧ガスのジェット効果により非常に早く膨らみ、中央のエアバック部12を乗員側に導く動作（高圧ガスのジェット効果を左右の側方エアバック部13、14で吸収する）をする。

【0034】中央のエアバック部12は、高圧ガスが、隔壁部7、8に設けた開口15、16から中央の分室9に流入して膨らまされる。この時、この中央のエアバック部12は、左右の側方エアバック部13、14に比較して内圧が低いため、乗員がエアバックに当たる時点の衝撃を、図4に示すエアバック部101が1つしかないエアバック100より低く抑えることができる。このために、乗員への衝撃を和らげることができる。また、乗員を拘束中は、ベントホール19より高圧ガスを逃がすので、内圧を下げる効果によりさらに乗員へのクッション性が良くなり、デバワー作用を2段階で行うことが可能になる。

【0035】また、左右の側方エアバック部13、14

の先部分13A、14Aが中央のエアバック部12の前面部12Aより前方に突出しているために、斜め衝突時の乗員拘束を、左右の側方エアバック部13、14がより早く膨らむことで向上されている。

【0036】図2に本発明に係るエアバック装置の他の実施の形態例を示す。このエアバック装置1にあっては、エアバック6と乗員の接触が一番多いと考えられる部分は、中央のエアバック部12の前面部12Aであるが、この前面部12Aを凹形状にして、乗員接触時の衝撃を緩和するようにしてある。また、隔壁部7、8に設ける開口15、16の数、位置及び面積を変更することにより、高圧ガスの流入量及び流入箇所を変えて中央のエアバック部12の膨らみ方を変化させて、乗員保護性能の向上を図っている。そして、他の構成は、図1に示す実施の形態例と同じ構成であるために、同じ符号を付して説明を省略する。

【0037】また、図3に本発明に係るエアバック装置の別の他の実施の形態例を示す。このエアバック装置1は、座席装置20の背凭れ21の右側部に装着されるサイドエアバックである。このエアバック装置にあっては、エアバック6を膨らませて、本来の設計形状になした状態では、側方エアバック部13、14が側面L字形状であって、中央のエアバック部12を挟んだ上下に位置している。

【0038】したがって、衝突時にインフレーターが起爆されて高圧ガスを発生し、この高圧ガスは、ガス噴出口からガス供給口17、18を介して分室10、11に流入し、これらの分室10、11に充満して側方エアバック部13、14を側面L字形状に膨らませて、中央のエアバック部12のガイドを行うと共に、隔壁部7、8に設けた開口15、16から中央の分室9に流入して、中央のエアバック部12を膨らませる。このために、早いバック形成を行うことが可能になる。このようなサイドエアバックはモジュール容量が小さい(狭い)割に広い部分を保護する必要がある場合に有効である。なお、このようなエアバック装置は背凭れに装備する外、ドアパネルやビラー部などに装備してもよい。

【0039】なお、前記インフレーターとして衝突時に起爆されて高圧ガスを発生する構成のものをを用いたが、圧縮ガスを内蔵するインフレーターを用いても良い。

【0040】

【発明の効果】以上説明したように、本発明に係るエアバック装置によれば、衝突時にインフレーターが起爆されて高圧ガスを発生し、この高圧ガスは、ガス供給口を介

して2つの分室の一方に流入し、この分室に充満してこれらの分室を形成するエアバック部を膨らませると共に、隔壁部に設けた開口からの2つの分室の他方に流入して、この2つの分室の他方を形成するエアバック部を膨らませる。

【0041】例えば、にエアバック部が1つしかないエアバックにおいては、衝突時にインフレーターが起爆されて高圧ガスを発生すると略同時にエアバック部が膨脹するように出力の立ち上りが早く、乗員への衝撃が大きい。が、上記したように、最初に高圧ガスを2つの分室の一方に供給してエアバック部を膨らませながら、高圧ガスを2つの分室の他方に流入させてエアバック部を膨らませるようにすることにより、立ち上りの出力を押えることが可能になって、乗員への衝撃を緩和することができる。

【0042】また、立ち上りの出力を押えることが可能になるために、エアバックを展開するときのショックが小さいものになり、エアバックの取付強度をさほど大きくする必要がなくなって補強を要さず、コストアップにつながらない。

【図面の簡単な説明】

【図1】本発明に係るエアバック装置の一実施の形態例の展開状態の概略的な斜視図である。

【図2】本発明に係るエアバック装置の他の実施の形態例の展開状態の概略的な斜視図である。

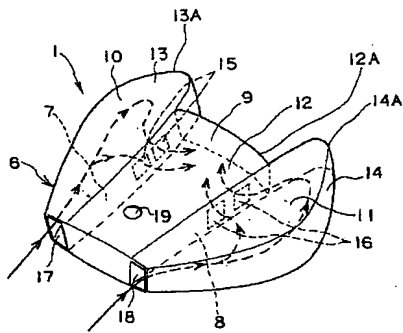
【図3】本発明に係るエアバック装置をサイドバックとして使用した場合の座席構成の斜視図である。

【図4】エアバック部が1つしかないエアバック装置の展開状態の概略的な斜視図である。

【符号の説明】

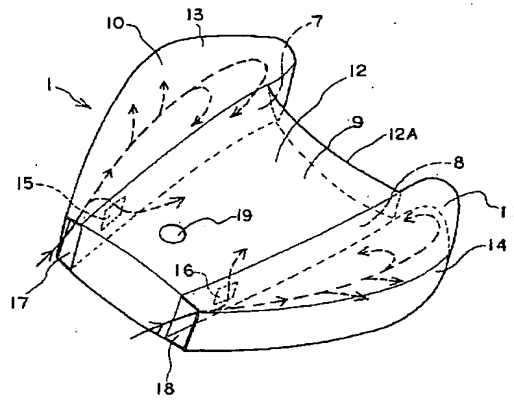
- 6 エアバック
- 7 隔壁部
- 8 隔壁部
- 9 分室
- 10 分室
- 11 分室
- 12 中央のエアバック部
- 13 側方エアバック部
- 14 側方エアバック部
- 15 開口
- 16 開口
- 17 ガス供給口
- 18 ガス供給口
- 19 ベントホール(排気口)

【図1】

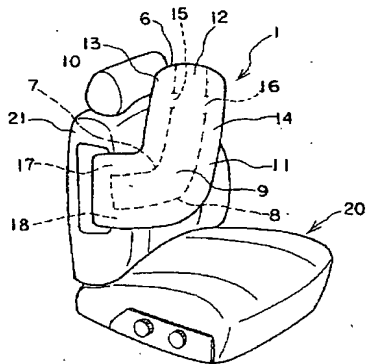


- 6 エアバッグ
- 7 隔壁部
- 8 隔壁部
- 9 分室
- 10 分室
- 11 分室
- 12 中央のエアバッグ部
- 13 側方エアバッグ部
- 14 側方エアバッグ部
- 15 開口
- 16 開口
- 17 ガス供給孔
- 18 ガス供給孔
- 19 ベントホール(排気口)

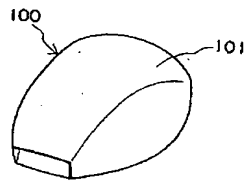
【図2】



【図3】



【図4】



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